

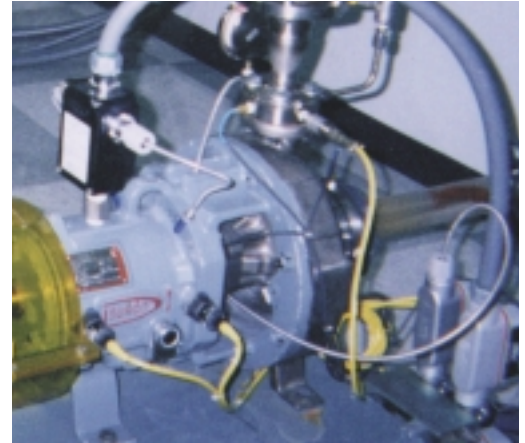
The Flowserve Learning Resource Center

Learning is most effective when theory is followed by hands-on use of equipment. To put this philosophy into practice, Flowserve, one of the largest industrial pump, mechanical seal, and valve manufacturers, has constructed a modern, 24,000 square foot Learning Resource Center in Dallas, Texas. This Learning Resource Center consists of classrooms, Power Labs, Static Labs, and a Repair Lab. In addition to fully-operational pumps, valves, and mechanical seals, the four Power Labs are filled with training aids, such as clear flowmeters and piping, gauges, thermocouples, and vibration monitoring equipment. In the two Static Labs, there is a variety of different pumps, including two unique, clear, fully-operational pumps. The Repair Lab allows students to practice repairing equipment, while the Valve Flow Bench enables students to disassemble, overhaul, and test valves. This specially-designed equipment enables

students to understand pump operation and learn how to identify the potential root causes of pump, seal, and control valve failures.

The installed vibration monitoring equipment consists of Bently Nevada's Trendmaster® 2000 for Windows and vibration and process transducers. Bently Nevada's System Engineering Services organization provided the necessary expertise to select, design, install, and commission this system. It includes proximity, REBAM®, acceleration, Keyphasor®, pressure, dynamic power, and temperature transducers. The Trendmaster 2000 System automatically acquires data from these transducers using an on-line scanning architecture using TIMs (Transducer Interface Modules) and flexiTIM™ signal conditioners. This data is available for display and diagnostics, using plots such as orbit/timebase, full spectrum, spectrum waterfall, and current value. The Trendmaster 2000 data can be correlated with process condition measurements and exported to software, such as Microsoft Excel. Students access the Trendmaster Display Software at any one of seven workstations through a peer-to-peer network.

In the Power Labs, many of the pumps have been modified to allow students to compare maintenance methods. Eight of these pumps have been instrumented



Bently Nevada transducer installation on pump in Power Lab.

with XY proximity transducers at the outboard bearing and accelerometers on the pump and motor casing. Most have REBAM and Dynamic Power transducers installed. The Static Labs, which feature current equipment from many manufacturers worldwide, have two pumps instrumented with Bently Nevada transducers. A wide range of pumps, valves, seals, and instrumentation provide students with a chance to work with the equipment they will find in their everyday work environment.

Bently Nevada is pleased to be able to showcase the Trendmaster 2000 at Flowserve's Learning Resource Center. The participants at this innovative learning center will be able to see firsthand the features and benefits of our systems. 